WHAT IS CLAIMED IS:

1. Method for operating stepper motors
with a first operational mode for a normal motor operation in which an alternating current (I_L) is impressed into at least one of the coils (L) of the stepper motor, and a second operational mode for detecting an operating state and a load state, respectively, of the motor from the level of a measuring current ($I_{S,EMK}$) which flows in the short-circuited coil (L) and which is substantially generated by a voltage (U_{EMK}) which is counter induced by a rotor of the motor in the coil (L), wherein the second operational mode for the coil (L) is activated during a time window (Z) of the first operational mode when the alternating current (I_L) which is impressed into the related coil (L) approaches a zero crossing.

2. Method according to claim 1,
in which a mechanical load of the motor is detected as the operating state.

3. Method according to claim 2,
in which the time window (Z) for the second operational mode is embedded such into the first operational mode that it is positioned substantially symmetrical to a zero crossing of the alternating current (I_L) which is impressed into the related coil (L) during the first operational mode.

4. Method according to claim 1,
in which during the second operational mode a reference position of the motor is determined by a change of a mechanical load which is caused by driving the motor against

a mechanical stop, by comparing the level of the measuring current ($I_{S,EMK}$) with at least one predetermined threshold value.

5. Method according to claim 1,
in which the level of the measuring current ($I_{S,EMK}$) flowing in the short-circuited coil (L) is detected from a voltage drop ($U_{S,EMK}$) at a measuring resistance (R_S).

6. Circuit arrangement for operating stepper motors,
especially according to one of the preceding claims, comprising a device (S; M, R_S; C) for detecting an operating state and a load state, respectively, of the motor from the level of a measuring current ($I_{S,EMK}$) which flows in a short-circuited coil (L) and which is substantially generated by a voltage (U_{EMK}) which is counter induced by a rotor of the motor in the coil (L) when the alternating current (I_L) which is impressed into the related coil (L) approaches a zero crossing.

7. Circuit arrangement according to claim 6,
in which the device comprises a switch (S) for switching between a first operational mode for normal motor operation in which an alternating current (I_L) is impressed into it least one of the coils (L) of the stepper motor, and a second operational mode for detecting an operating state of the motor in which the coil (L) is short-circuited.

8. Circuit arrangement according to claim 6,
in which the device comprises a measuring resistance (R_S) in the short-circuited coil circuit and a measuring circuit (M) with which in the second operational mode a measuring voltage

($U_{S,EMK}$) which drops over the measuring resistance (R_S) is detected and compared with at least one predetermined threshold value (U_{SO}, U_{SU}) for determining an operating state.

9. Circuit arrangement according to claim 7 and 8, in which the device comprises a control circuit (C) for periodically switching the switch (S) into the second operational mode in dependency on the frequency of the alternating current (I_L) which is impressed into the coil.

10. Circuit arrangement for operating stepper motors, especially according to one of the preceding claims, comprising a device (S; M, R_S; C) for detecting an operating state and a load state, respectively, of the motor from the level of a measuring current ($I_{S,EMK}$) flowing in a short-circuited coil (L) which is substantially generated by a voltage (U_{EMK}) which is counter induced by a rotor of the motor in the coil (L) when a supply voltage which drives the coil current changes its polarity.

11. Computer program comprising program code means for conducting a method according to one of claims 1 to 5 when the program is conducted on a micro-computer.